

A COMPARATOR CIRCUIT FOR DIFFERENTIAL SWING COMPARISON AND COMMON-MODE VOLTAGE COMPARISON

Toshihiro Nomura

ABSTRACT

5 A comparator circuit includes at least one transconductance stage that receives
two test voltages and two reference voltages. The transconductance stage produces two
test current that are proportional to the test voltages and two reference currents. A
switching circuit that is coupled to the transconductance stage. The switching circuit has
two output terminals that are coupled to a conventional comparator stage. The switching
10 circuit can combine the test currents with the reference currents to realize a differential
swing comparison mode and a common-mode comparison mode as required for testing
differential signals. Moreover, by disabling appropriate output signals from the at least
one transconductance stage, a single-ended comparison mode is realized. By using two
identical transconductance amplifiers, the non-linearity of the transconductance stage is
15 advantageously canceled out.